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The present invention provides novel uses and compositions for 5,10-methylene tetrahydrofolate ("5,10-CH₂-THFA") in the treatment of cancer. The present invention is based on the surprising result that 5,10-CH₂-THFA, while increasing the efficacy of 5-fluoruracil (5-FU) in reducing the rate of tumor growth and increasing survivorship, also reduces the toxicity to the patient of 5-FU. The present invention provides methods and compositions for treating cancer patients that include 5-FU, 5,10-CH₂-THFA, and one or more additional anticancer drugs. Such methods and compositions can provide increased efficacy and reduced toxicity when compared with current treatment modalities.



